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DELPHINIUM NEWTONIANUM, A NEW SPECIES FROM THE ARKANSAS OZARKS¹

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(Plates 548 and 549)

The American species of the genus *Delphinium* are so consistent in their racemose or spicate inflorescence that any very different form is certain to attract attention.

On July 4, 1935, while the writer was driving south of Jasper, Newton County, Arkansas (station 1 on map), on State Highway No. 7, his attention was caught by some tall, diffusely branched plants of *Delphinium* growing in the edge of the woods along the highway. An examination of the plants showed that they had a very open cymose-paniculate inflorescence instead of the usual racemose, racemose-paniculate or spicate inflorescence. They were associated here with *Campanula americana*, *Cimicifuga racemosa*, and other species of similar habitat. These were photographed and some taken for specimens.

Only a few plants were found in this vicinity but about twenty-five miles farther south near Freeman Springs, Pope County (Station 2 on map), more of this same unusual plant were found extending over two or three miles of woodland. This area is in the Ozark National Forest, consisting essentially of white, black, and red oaks, black gum, American elm, dogwood, and red maple. It has been free of surface fires for several years, and was well covered with undergrowth of various kinds, including, among others: (1) *Arisaema triphyllum* (L.) Schott, (2) *Campanula americana* L., (3) *Cimicifuga*

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racemosa (L.) Nutt., (4) *Eupatorium* spp., (5) *Phlox divaricata* L., (6) *Phlox pilosa* var. *ozarkana* Wherry, (7) *Rubus occidentalis* L., (8) *Sanicula* spp.

Due to a dry season most of the leaves had fallen from these *Delphinium* plants, but a few that were left showed that the lower ones were long-petioled, with deeply lobed blades, quite similar to those of *D. tricornis*. They became less lobed and the petioles progressively shorter toward the inflorescence until the upper floral bracts were



Map of Arkansas showing
two Stations for
DELPHINIUM NEWTONIANUM

sessile, entire, slender, and about one centimeter long. Like *D. tricornis*, also, the three follicles were widely divergent when mature, but about one-third smaller and the plants were very slender and branched above.

The plants arose from perennial, somewhat thickened, branched, tuberous roots, from two to five centimeters long, the divisions of which were nearly parallel or slightly divergent.

Specimens were taken for herbarium sheets and some were kept alive and planted in the writer's garden for further observation and study. They survived the very dry summer of 1936 and have shown that they are not only hardy, but may prove to be a worthwhile addition to the garden varieties of the genus. The same station has been visited each year since that time and further observations made and specimens taken. The flowering period appears to extend from the latter part of May to the middle of July in this locality.

TABLE I. will give some of the features of this plant as compared with *D. tricornis* which it most closely resembles.

TABLE I.

Characters	<i>D. tricornis</i>	<i>D. newtonianum</i>
Habit	Strict, seldom branching	Open, diffusely branched
Stems	Succulent, fleshy	Slender, not fleshy
Height	1.5-7 dm.	3-13 dm.
Pubescence	None or scarce	General, fine, less below

TABLE I.—*Continued*

Characters	<i>D. tricornne</i>	<i>D. newtonianum</i>
Leaves, lower		
Petioles	10–15 cm.	8–15 cm.
Blades	Deeply palmately lobed into 3 lobes, each of these further lobed	Deeply palmately lobed into 3 lobes, each of these further lobed; in general not so much so as <i>D. tricornne</i>
Upper	Still lobed, but less so	At base of inflorescence with 3 slender lobes, simple or slightly lobed
Pubescence	Moderate on both sides	Only on veins beneath
Pedicels	1–4 cm.	3–5 cm.
Pubescence	Of simple hairs	Of simple and glandular hairs
Flowers		
Color	<i>Purple-blue</i> with lavender and white variants	<i>Bright blue</i> , lavender and white variants
Sepals	Not wide-spreading	Wide-spreading
Petals	Short; hirsute with yellow or white hairs	Short; hirsute with pale yellow and white hairs
Inflorescence	<i>Racemose</i>	<i>Cymose-paniculate</i>
Fruits	3, <i>pubescent</i> divergent, 1.5 cm. long	3, <i>glabrous</i> divergent, 1 cm. long
Time of flowering	April–May	May–July
Fruiting	May–June	July

In order to determine accurately the color of the flowers some of the fresh blossoms were referred to Maerz and Paul's *Dictionary of Color*. The results are given in TABLE II.

TABLE II.

Flower Color Diagnosis

Number of Specimens	Color Determination	Number of Specimens	Color Determination
1	34-B-6	7	43-B-11
2	35-B-12	1	43-C-10
1	43-A-6	2	43-C-11
2	43-A-10	2	43-C-12
2	43-A-11	3	43-D-12
1	43-B-7	1	43-E-11
3	43-B-8	1	43-E-12
2	43-B-10	—	
		Total	31

From this it may be noted that the blue color is reasonably constant,

though variable, but that the mode is number 43-B-11. Extreme variants were not included in the comparison above.

After a careful study of specimens of this plant and checking with approximately 2000 sheets of *Delphinium* in the herbarium at the Missouri Botanical Garden, it is obvious that they represent a new species. In fact, it is so distinct in its inflorescence that there might be a justification for a new section of the genus. However, it has so many features in common with other species in the genus *Delphinium* that it will be considered at present only as a new species. Further study will determine whether or not any other disposition of it may be justified.

The proposed name for this new species, *Delphinium newtonianum* has been selected for two reasons: (1) The plant was first found in Newton County, Arkansas; (2) The writer's first interest in plant study was inspired and his pursuit of it sponsored by Newton H. Moore, his father, of Zanesville, Ohio.

DELPHINIUM newtonianum, sp. nov. Herbs with perennial, tuberous, slender, clustered roots 2–5 cm. long; stem simple below, loosely branched above, 3–13 dm. high, branches 0.5–4 dm. long; leaves deeply 3-lobed, each division of lower ones more or less deeply and unequally divided or lobed; petioles of lower leaves 8–15 cm. long, on upper leaves reduced to 1 cm. or less; inflorescence open *cymose-paniculate*, spreading to 7 dm.; stems and leaves puberulent, with simple hairs; those of pedicels and calyx interspersed with straight glandular hairs having elliptical bases; flowers bright blue, or some lavender or white; sepals spreading, 1–1.5 cm. long, spur ascending, often arched or curled, about 2 cm. long; follicles glabrous, strongly divergent. Open woods, May to July; fruiting July. Newton and Pope Counties, Arkansas.

DELPHINIUM newtonianum, sp. nov. Herbae cum perennibus, tuberosis, gracilibus, fasciculatis radicibus, 2–5 cm. longis, caule infra simplice, supra laxo ramoso, 3–13 dm. alto, ramis 0.5–4 dm. longis, foliis profundissime partitis in partis tres (quaeque pars foliorum inferiorum plus minusve profunde et impariter partita); petioli foliorum inferiorum 8–14 cm. longi, superiorum 1 cm. aut minus; inflorescentia aperta *cymoso-paniculata* patula ad 7 cm. longa, caulibus et foliis pubescentibus capillis simplicibus, pedicellis et calyce capillis rectis, glandulosis, basi ellipticalibus interspersis floribus aliis clare caeruleis, aliis purpureis aut albis; sepalis patulis 1–1.5 cm. longis; calcare ascendente, saepe fornicato aut crispato, prope 2 cm. longo; folliculis glabris, valdi divergentibus.—Habitat silvas sparsas; flor. Maio-Julio: fruct. Julio. Newton and Pope Counties, Arkansas.

The type selected is deposited in the herbarium of the Missouri

Botanical Garden with co-types at the University of Arkansas, Gray Herbarium, and others.

Collections: No. 350074 TYPE, July 4, 1935, 2 miles s. of Jasper, Newton Co., Arkansas, *D. M. Moore*; no. 350091, COTYPE, July 4, 1935, Freeman Springs, Pope Co., Ark., *D. M. Moore*; no. 350191, July 29, 1935, Freeman Springs, Pope Co., Ark., *D. M. Moore*; no. 4186, June 12, 1936, Freeman Springs, Pope Co., Ark., *D. M. Moore*.

This opportunity is taken by the writer to express his appreciation to Dr. J. M. Greenman, of the Missouri Botanical Garden, for his kind assistance at the herbarium, and to others for their suggestions and assistance.

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A STRANGE RUBUS.—In the Gray Herbarium is an unidentified sheet of Rubus, lacking flowers and fruits, collected some years ago on dry land in mixed woods at Sheboygan, Wisconsin, by Charles Goessl. It is the terminal part of a slender vine-like primocane with curiously